

Patent Application of  
Randy D. Akins  
For

**TITLE: THE SEQUENTIAL IMAGE ADVANCING SYSTEM (THE S.I.A.S.)**

**BACKGROUND – FIELD OF INVENTION**

The present invention relates generally to computerized image-viewing devices and more particularly to a new system that allows the user to sequentially advance or reverse images by voice recognition, remote control, navigational buttons or one of the many kinds of adaptable computer switches.

**BACKGROUND – PRIOR ART**

The idea of image advancing devices and/or page-turners has been an interest to many inventors. Here is a list of several patents that include mechanical page-turners for musicians.

U.S. Pat. No. 3,665,093 issued on May 23 1972 reveals a page-turner that uses clips and a motor/pulley system to turn pages. There is a footswitch with this device.

U.S. Pat. No. 4,040,196 issued on April 18, 1978 reveals a page-turner where a mechanical arm device turns the pages.

U.S. Pat. No. 4,719,712 issued on January 19, 1988 reveals a page-turner that uses a suction device to turn a page.

U.S. Pat. No. 5,493,943 issued on February 27, 1996 reveals a page-turner where a computer helps operate the system.

Since many people have access to a computer, new inventions using computers are being developed. The use of portable image-viewers, display-devices, music-readers and electronic books are known in the prior art.

The following patents represent related patent-documents that I have found through my patent search.

For example:

Rubincam, U.S. Pat. No. 4,159,417 June 26, 1979

Rubincam's Electronic Book is described as a device using digital memory and display along with a storage container that presents digitally encoded information on a display screen. His invention uses holographic cards to store information.

Hatakeyama U.S. Pat. No. 4,757,302 July 12, 1988

Hatakeyama et al, image displaying apparatus presents a device for displaying a plurality of images. The object of this apparatus was to provide easy and efficient searching of documents contained in microfilm or electronic files.

Van d.Abbeel U.S. Pat. No. 4,779,510 October 25, 1988

Van den Abbeel describes an electronic apparatus for displaying music. This apparatus although cumbersome proposes a console having a screen for displaying electronically stored music for each musician of an orchestra. Accompanying the viewing screen is a keyboard for use by the user, and a microphone to pick up sounds emitted during the performance of a selection of music. As the performance proceeds, the musical score displayed on the screen is automatically shifted page by page.

Fernandez, U.S. Pat. No. 4,855,725 August 8, 1989

Fernandez describes a microprocessor based simulated book based upon using a compact disk (cd-rom), LCD screen and a connection to a mass storage PC. This device has the size and shape of a book and could possibly be bound in leather. The device is driven by the microprocessor and has a viewable screen. It has switches on a tactile pad similar to a track-ball and is used for scrolling through information on the screen. This Ebook has several pages of walk-away memory (about 20 pages) that can be used for later reading when not connected to the mass storage.

Tsuchiya U.S. Pat. No. 5,239,665 August 24, 1993

Tsuchiya describes an Electronic Book that has special keys for changing pages and certain portions of text. This Ebook permits retrieval from laser cards and floppy disks. Here the user can read visual presentations of information at a speed at which the user can read books. Tsuchiya makes special mention of the importance of Ebooks for social reasons of saving space and saving the trees on planet earth.

Oliva, U.S. Pat. No. 5,438,344 August 1, 1995

Oliva describes a portable video book for displaying information stored on a cd-rom disk. The goal here was to provide a simpler way to read a book by using the cd-rom and video display. Designed to help children perhaps with poor eyesight, the display could change text sizes.

Van Kruistum, U.S. Pat. No. 5,703,624 December 30, 1997

Van Kruistum describes a compact-portable image viewer for read-only files. A LCD screen is included along with a standard floppy disk-drive to receive non-volatile floppy disks. After an image is displayed on the LCD screen the device allows the user to press a key to pan the image for magnification and for different viewing.

Reavey U.S. Pat. No. 5,847,698 December 8, 1998

Reavey's Electronic Book Device combines the look and feel of a convention book along with electronic technology. This has a single flat panel or a dual flat panel display that accesses information on memory cards. The display screens can display text and graphics in black and white or in a color format. This Ebook has three different viewing modes on the viewing panels.

Gaston, U.S. Pat. No. 5,956,048 September 21, 1999

Gaston describes an electronic book system that is ergonomically-shaped with thumb-shaped frontal depressions for comfortable gripping. Control buttons are mounted for thumb manipulation. This apparatus is battery-powered and includes a memory which receives text downloaded from a computer. This unit is equipped with a stand to help connectivity to the PC. The stand is modular with

corresponding male and female data ports. Information can be stored on a ROM chip and plugged into the unit to view information. Gaston suggests that book publishers could offer books or novels with encoded one-time-accessing of the data to prevent unauthorized copying of the information.

Kuno et al., describes a portable display device capable of presenting a document in an easy to read format. This is accomplished by having at least two display screens and by providing the user with two modes. The first mode allows the screens to be linked together to view information and the second allows the user to view information on the screens independent of each other.

Froeber        U.S. Pat. No. 5,991,594        November 23, 1999  
Froeber describes an electronic book using a LCD screen and PCMCIA cards. The apparatus also includes a pair of speakers, a speech processor/synthesizer and bookmark buttons.

MacMahon    U.S. Pat. No. 6,037,954        March 14, 2000  
McMahon describes a portable hand-held reading device with improved ruggedness and usability features. Comprises a display screen, control panel and a memory device. Includes "book-marking" and scrolling features forward and backward through a document. Text size can also be controlled. Removable memory is provided with cd-rom or micro-cd-rom. Shock-resiliency, easy-grip and impact absorption to protect the device is of keen interest.

Chombo        U.S. Pat. No. 6,313,828        November 6, 2001  
Chombo's electronic book relates two LCD screen panels connected to each other with a hinge. Some of the functions include: PCMCIA slot, power supply, external device inputs, hard-drive, audio processor, video processor, RAM memory and processor along with a cd-rom drive. Here, Chombo tries to merge peak technology from Personal Computers (PC) with an Ebook.

Eberhard        U.S. Pat. No. 6,331,867        December 18, 2001  
Eberhard describes a user interface and other software features that facilitates viewing and the management of information by using touch-sensitive display screen. This is a hand-held computing device that is adapted to communicate with a PC via a "cradle".

Jacklin        U.S. Pat. No. 6,396,472        May 28, 2002  
Jacklin describes a device and process for displaying images and sound. Here, this device receives information from memory cards and non-volatile digital recording mediums (in miniature scale). This apparatus also is a display for digital photographs with accompanying stored audio recordings.

Harada        U.S. Pat. No. 6,486,890        November 26, 2002  
Harada, et al., describes a portable image device having an open display function like a book that displays electronic sheet information. The object of this invention was to provide the user with the option of viewing images on two screens or the same image on both screens. Selecting these modes is up to the user.

Kondo        U.S. Pat. No. 6,512,497        January 28, 2003  
Kondo et al., describes an image information display device providing a two-screen (liquid crystal) electronic book that reduces energy consumption. Two screens may be used or the user can choose only one of the existing screens to conserve energy.

The foregoing prior art generally describes the various portable viewing devices and electronic books. There are many similarities with all of them. They all seem to have some kind of memory storage,

portals for memory cards, digital cards, cd-rom or floppy disks. Liquid crystal display (LCD screens) seems to be the choice of most electronic books and image viewers. Navigating through the various programs can be accomplished by pressing buttons, scrolling devices or touch-screen technology. **However**, it is the view of this inventor that there are individuals who find it difficult, inconvenient or impossible to reach an arm or hand to access the controls on any of these devices. There are those who are physically handicapped or challenged who would find little or no help from any of the devices or electronic books available. For individuals unable to move a hand, finger or foot, the inventions based upon the prior art would not allow those individuals to function in an independent manner.

## **OBJECTS AND SUMMARY OF THE INVENTION**

In view of the above it is an object of the present invention to provide a (new and portable) computerized image-display-device and method to help individuals who find it difficult, inconvenient or impossible to turn a page or to push a button. Another object of the present invention is to include the appropriate buttons, switches and controls that will allow individuals who are not physically challenged to manually navigate this present invention.

This invention differs and improves upon known prior art in several ways.

1. This invention is equipped for voice recognition allowing the user to advance or reverse images by using the human voice.
2. This invention also receives signals from a remote control (similar to those used with modern televisions).
3. This invention is equipped with bright-colored navigational buttons that can light-up when activated.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

The unique features of the present invention should be better understood by viewing the following detailed-drawings set forth as a preferred embodiment of the invention, not limiting the scope of the invention. The drawings are presented for the purpose of illustration but not limiting the invention.

Fig. 1 Illustrates the front perspective view of the single display screen according to an embodiment of the present invention.

Fig. 2 Illustrates the back perspective view of the single display screen according to the embodiment of the present invention.

Fig. 3 Illustrates the top view with carrying handle.

Fig. 4 Illustrates the bottom view of the present invention.

Fig. 5 Illustrates the left-side view with on and off switch.

Fig. 6 Illustrates the right-side view with the input for the electric supply cord.

Fig. 7 Illustrates the power cord that carries power and electronic signals to and from the display screen from the computer box.

Fig. 8 Illustrates a rechargeable battery pack equipped to interface with the display unit.

Fig. 9 Illustrates a slide-on protective covering for the single display screen

Fig. 10 Illustrates the top view of the slide-on protective covering .

Fig. 11 Illustrates the front perspective view of the computer box.

Fig. 12 Illustrates the left-end view of the computer box.

Fig. 13 Illustrates the back perspective view of the computer box.

Fig. 14 Illustrates the right-end view of the computer box.

Fig. 15 Illustrates the top perspective view of the computer box.

Fig. 16 Illustrates the bottom perspective view of the computer box.

Fig. 17 Illustrates the electric power wire connecting household current to the computer box.

Fig. 18 Illustrates a double display screen with hinge.

Fig. 19 the back view of the double display screen with prop and brace.

Fig. 20 Illustrates the top view of the double display screen.

Fig. 21 Illustrates the bottom view of the double display screen.

## **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

Now referring to Fig. 1- Fig. 20, the embodiment of a new computerized image-viewing device and method according to the present invention will be described in detail.

In Fig. 1 there is a viewing display unit adapted to be used as a portable image-viewing device. A LCD (or Plasma-related) viewing screen 4, is surrounded by a durable housing 2 that protects the display screen and houses a electronic wiring system (not shown) and a credit card "size"- computer on a chip (not shown). In this front view of the apparatus can be seen several unique details regarding this new image-display device. An infrared sensor 6 at the top of the display screen allows a user to navigate through the programs of the display unit by a remote control. A voice recognition sensor 18 (located at the bottom of the display unit where the sensor will be closer to the user's voice) allows the user to navigate through the device's many functions by use of the human voice. Different colored navigational buttons 10a-10f descend on the right-hand side of the housing along with a number for each of the different colored navigational buttons. The numbers will help the user navigate through the different programs to be displayed on the device. Another role of the numbers next to the colored-

buttons is to help those who have a difficulty distinguishing colors. A auto-run button 12 will also be used for engaging the computer for specific tasks.

In Fig. 2 can be seen the back view of the display housing 2. There is a door 14 and two fasteners 16 for entrance into the interior of the housing. This is where the wiring and computer-on-a-chip is located.

In Fig. 3 the top view of the housing 2 is illustrated. There is a carrying handle 20 that can be used to carry the display unit 2. This handle 20 collapses into the housing 2 to create an even finish. References 24 can be seen from the top view and refer to a guide-track that will allow the user to slide a cover 5 over the display screen 4.

Fig. 4 illustrates the bottom view of the display housing 2 along with the guide-tracks 24 for the display cover 5.

The left-side view of the display 2 is presented in Fig. 5. Again, the guide-tracks are illustrated in 24 for the front cover 5 and 26 illustrates an on/off switch. An input 30 is provided for a rechargeable battery source (see Fig. 8). In Fig. 6, there is an input 28 for an electric wire that allows electric signals to be brought to and from the display unit and another input 32 for the rechargeable battery source to provide electricity (see Fig. 8). In Fig. 7, are two ends to the electric wire. The male plug 34 attaches to the display unit 28 and the other end 36 attaches to the computer-box Fig. 12, reference 56. Fig. 8 illustrates the rechargeable battery pack 39 where the male plug 33 interfaces with either the left-side of the display 2 at 30 or the right-side of display 2 at 32.

Fig. 9 illustrates the LCD or plasma-related display screen having a slide-on cover 5. As can be seen by the arrows below the cover 5, the cover slides down into the guide-tracks 24 to cover the entire front of the display screen. The guide-tracks 24 stop at the bottom of the display housing 2 to prevent the cover from sliding out of the bottom of the unit 2. Fig. 10 illustrates a top view revealing the clips 9 that keep the cover 5 in place along the guide-tracks 24.

Fig. 11 through Fig. 16 illustrates the computer box 42. In Fig. 11, a front view of the computer box 42 presents the various hardware that makes this box a computer. This illustration makes room for both the cd-rom drive 44 and the new and improved dvdr drive 46 which could eventually replace the cd-rom drive 44. A standard floppy drive 48 is included since the floppy drives are still being used. Through these drives (44,46 and 48) information can be sent to the storage drive (not shown) in the computer box and /or displayed on the display screen 4. Information can also be stored on the cd-rom, dvdr, and the floppy disks. It is considered in this present invention that there will be new hardware developed that are smaller in size and faster in production speed. This invention does not limit it's hardware to the present but to the faster and smaller units of the future as well as current technology. Audio-in jacks are illustrated in Fig. 13 at reference number 70. Audio-out jacks are illustrated at 71. Fig. 14 details the right-side view illustrating the input 72 for a common household electricity wire. The common electric plug is illustrated in Fig. 17 where 73 interfaces with 72 and 75 plugs into common household current. The top of the computer box 42 is represented in Fig. 15 showing a retractable carrying handle 74 for the unit. Fig. 16 represents the bottom of the computer box 42, illustrating the four rubber feet 50, and a vent 76 for the cooling fan (not shown).

In Fig. 18 is an illustration of a twin screen or dual screen representation of this invention. Fig. 18 represents a front view. The display screen 2a is identical to Fig. 1 above. On the left-hand side of Fig. 18 is display screen 2b being the same kind of display screen as 2a with the colored buttons (8a

though 8f) on the left-hand side instead of the right-hand side of the housing. References 10a-10f are identical on the left-side too. At the top of Fig. 18 are two infrared sensors 6 for remote advancing of images.

At the bottom of Fig. 18 are voice recognition sensors to allow the user to navigate by voice commands.

The auto-run button stated above (see Fig. 1) is located on the front housing 2a at reference 12.

Fig. 19 represents the back view of the dual screen having identical doors 14 for access into the onboard computer and wiring. The doors are attached by fasteners -16. Fig. 20 illustrates the simple top view of the dual screen display and Fig. 21 illustrates the bottom view of the device 2a and 2b.

## OPERATION OF INVENTION

There are several ways to use the sequential image advancing system, the present invention.

Once the computer box is connected to the display screen (Fig. 7), the user can begin viewing images immediately. Images" refer to pictures, art, the printed page, signs, shapes, symbols, written and/or printed languages, drawings, schematics, graphs, music symbols and digital images (both color and black and white). Today, it is common knowledge that individuals can find and purchase information stored on storage devices like memory cards and cd-rom. The user can simply insert a cd-rom or other storage device into the computer box (Fig. 11) and access the information on the display screen (Fig. 1). To navigate through the information or software presentations on the display screen 4, the user can advance images by use of a remote control, by voice recognition (which will assist those who find it difficult, inconvenient or impossible to lift an arm or push a button). Other ways to navigate on the present invention is to use the colored buttons on the housing of the display unit (8a-8f). These bright different colored buttons allow the user to navigate through the programs of editing/selecting and the image advancing process. The different colored buttons are not to be underestimated. These buttons are significant and there is an important descending order to them. The buttons are to be polished plastic buttons, soft rubber buttons or buttons with internal lights that temporarily light-up when activated. The top button is bright Red 8a. Below the Red button is a bright Yellow button 8b. Next and below the Yellow button is a bright Blue button 8c. These three buttons represent the primary colors in art. Next, and below the Blue button descend the three secondary colors: Orange 8d, Purple 8e and Green 8f. Mixing the primary colors (the top three) creates the secondary colors. For individuals who can physically reach their hand, the buttons will prove to be very useful for navigating through the present invention capabilities. The different colored buttons are very significant regarding navigating and educational selections. Other added features are the numbers printed next to each of the descending colored-buttons. Next to the Red button will be the number "1" – 10a. Next to the Yellow button will be the number "2"-10b. Next to the Blue button will be the number "3"-10c. Next to the Orange button will be the number "4"-10d. Next to the Purple button will be the number "5"-10e. Next to the Green button will the number "6"-10f. Along with other functions that will help the user, the numbers will also help those individuals who have difficulty recognizing colors. For those who find it difficult, inconvenient or impossible to physically reach and touch the navigational buttons, they can simply "speak" the colors to navigate. In certain situations the user can "speak" the numbers next to the colors to navigate. An example of using the colors would be to press the bright Red button 8a, to "Stop" a process. If the user wants to start a process, the user will press or say "Green" 8f. To slow a process, the user can press the "Yellow" button 8b or say yellow. These three colors (Red, Yellow and Green) are well known traffic signals here in the United States and will be used often by the user of the SIAS.

Along with the above, this invention also has the technology for a user to simply touch the display screen in order to navigate through programs. This is known as "touch-screen".

The present invention is also equipped to receive a large number of the different switches available for single or double-click input through the mouse port Fig. 13, reference 64. These switches are similar to a common computer mouse where a user can select a function by "clicking" the index finger mouse button and select again by "clicking" the right mouse button. A very important switch would include any of the "puff and sip" devices that can be used by people who do not have the use of their arms or feet. Musicians might prefer a foot switch if they are performing alone. Other musicians who require an assistant to help advance or turn-pages might prefer the assistant to use a hand-held switch or a remote switch to advance each image of sheet music on the present invention's display screen.

One of the major differences between the present invention and the prior art is that the present invention allows individuals to create and view images for themselves. By using a scanner or a digital camera (along with a media reader) the user can scan or download images into the computer box. Both a scanner and a media reader (that works along with a digital camera), the user can scan images directly into the computer box. With this invention's ability, the user will be able to arrange and edit the images that are scanned into the memory. Digital cameras provide a great vehicle to store images. The user can take digital pictures and arrange them in a specific order. This would include taking digital images of printed material, musical scores or anything else the user would like. If the user would prefer, the user may choose to use a personal computer to perform scanning or digital reading from a media reader and then store that information on a floppy, cd-rom or dvdr.